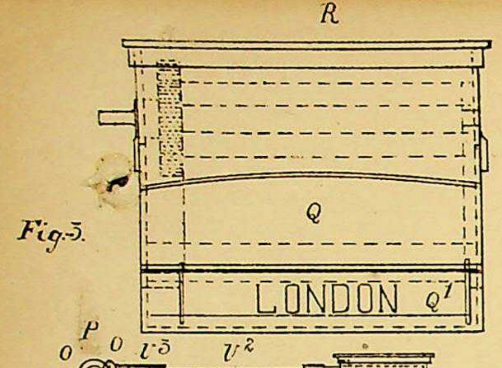

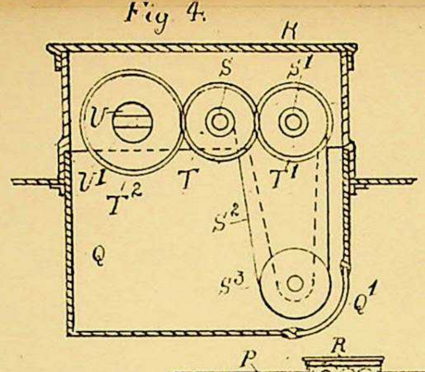

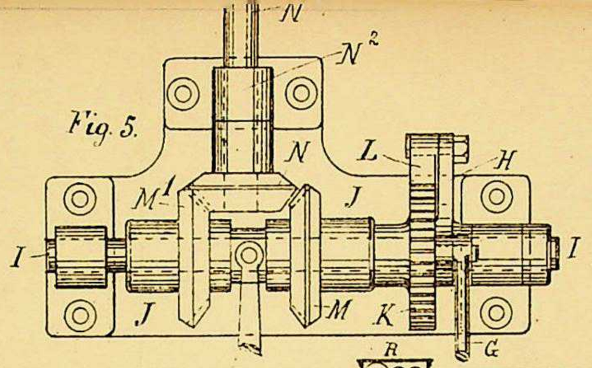

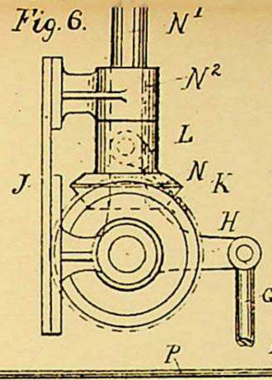

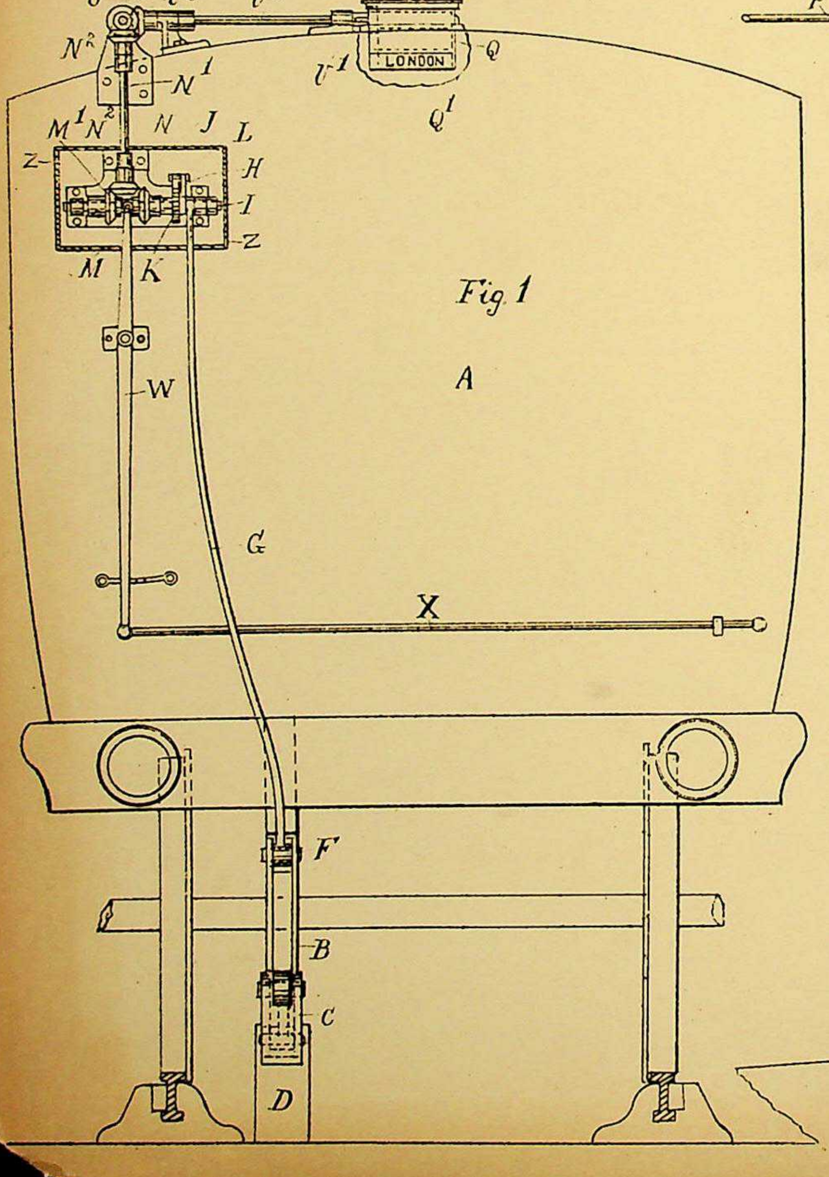

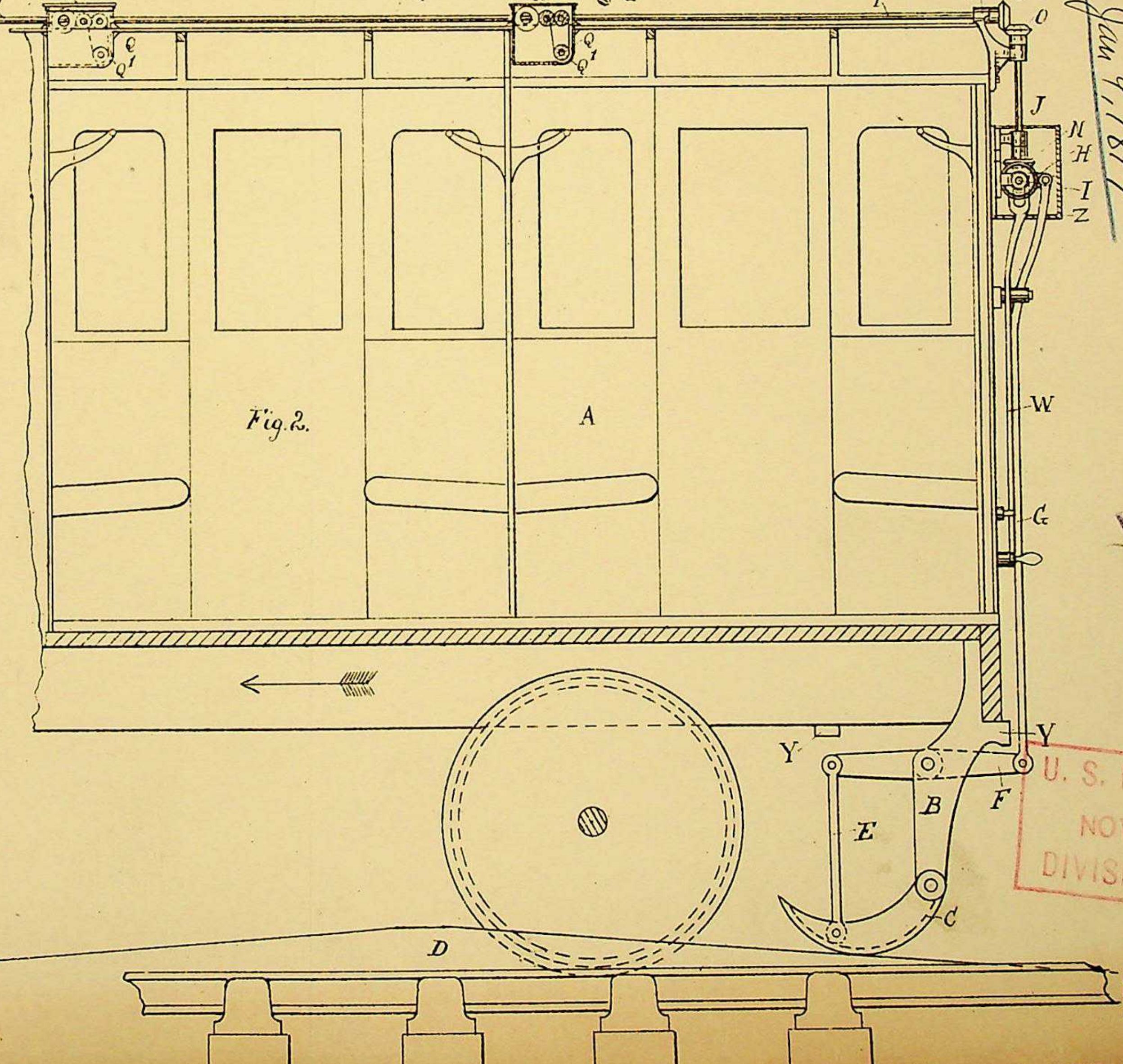

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Brit. Elliott.
Jan 9, 1897

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U. S. Patent
NOV 11 1
DIVISION X

Indicators
Station

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N° 644 A.D. 1897

Date of Application, 9th Jan., 1897
Complete Specification Left, 9th Oct., 1897—Accepted, 18th Dec., 1897

DUPLICATE

PROVISIONAL SPECIFICATION.

"Improvements in or relating to Station Indicators or Combined Station Indicators and Signalling Mechanism."

I, Thomas Elliott, of 21 Pelham Street, in the Borough of Nottingham, Furrier and Mantle Merchant, do hereby declare the nature of this invention to be as follows:—

This invention relates to improved apparatus for indicating in each compartment of a train the several stations, junctions, or the like on the line as the train approaches each in turn. The apparatus may be also used in conjunction with apparatus for signalling to the driver or guard or both.

In carrying out my invention each carriage is provided with an approximately vertical slide, a lever, or other convenient mechanism, the lower end of which is carried below the carriage and engages with and is raised, by raised platforms or striking parts placed at the required points on the line.

At a convenient part of the carriage is a transverse shaft mounted in suitable bearings, this shaft is provided with a ratchet wheel which is operated by a pawl connected to the slide or lever before-mentioned, and the said shaft is thus intermittently advanced or rotated the required distance by each raised platform or striking part of the line.

The transverse shaft is connected by an intermediate shaft and bevel toothed wheels, to a longitudinal shaft carried preferably over the top of the carriage.

In a convenient position in each compartment, is a rotating cylinder, on the periphery of which are printed the names of the stations in their proper order. The axis of each cylinder is connected preferably by a short shaft and bevel toothed wheels, to the longitudinal shaft, so that the whole are rotated through the required space simultaneously.

The axis of the cylinders are connected to their operating mechanism by suitably formed clutches, in order that they may be readily removed and interchanged as required, for cylinders on which the names of the station correspond with the particular route or line the carriage may be for the time being running on.

The cylinders may be also enclosed in a suitable box or casing provided with an opening of sufficient size to expose the name of one or more stations at once as desired.

In order that the same cylinder may be used for a carriage travelling in either direction between two points, the transverse shaft is provided with two bevel wheels, either of which may be moved into engagement with the wheel on the end of the intermediate shaft, and the direction in which the cylinders rotate is thus reversed.

The arrangement described may be fitted to the engine and guards van, in addition it may be in either or both cases connected in foggy or other unfavourable weather to the brake mechanism so as to automatically apply the brake, or be connected to other suitable indicator mechanism adapted to attract the attention of the driver or guard or both.

[*Price* 8*d*.]

The above described mechanism is preferably arranged so that it may be thrown out or into action by either the driver or guard or by both as required.

Dated this 9th day of January 1897.

BOULT & WADE
Agents for the Applicant.

COMPLETE SPECIFICATION.

Improvements in or relating to Station Indicators or Combined Station Indicators and Signalling Mechanism.

I Thomas Elliott, of 21, Pelham Street, in the City of Nottingham, Furrier, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

This invention relates to improved apparatus for indicating in each compartment of a train, the several stations, junctions, or the like, as the train approaches each in turn. The apparatus may also be used in conjunction with apparatus for signalling to the driver or guard.

The invention will be best understood by reference to the accompanying drawings in which

Fig. 1. is an end elevation, and

Fig. 2. a side elevation (partly in section) of a railway carriage showing my invention applied thereto.

Fig. 3. is a front elevation, and

Fig. 4. a vertical cross section of the indicator mechanism.

Fig. 5. is a vertical front elevation, and

Fig. 6. an end elevation of the indicator operating racket wheel and pawl, and the reversing arrangement.

Like letters indicate like parts throughout the drawings.

In carrying out this invention each carriage A (see Figs. 1. and 2.) is provided with a bracket B which may be secured to the underframing of the carriage, and on the lower end of the said bracket is pivotted a curved shoe or lever C. This shoe or lever C engages with and is raised by inclined planes or striking parts D placed at the required parts on the permanent way, when the carriage travels past the said points, whether the carriage is moving in the direction indicated or in the reverse direction.

The shoe or lever C is connected by a link E to one end of an intermediate lever F which is pivotted on the bracket B as shown. The other end of the lever F is connected by a link G to a bell-crank lever H (see Figs. 1. 2. 5. and 6.) which is mounted loosely on a shaft I carried in bearings formed on a plate J secured to the back of the carriage.

The shaft I is provided with a rachet wheel K which is advanced, by a pawl L on the bell-crank lever H, and two level toothed wheels M M^1 which slide longitudinally on the shaft I but are connected thereto by a feather-key in the one engaging with a corresponding keyway in the other.

Either of the wheels M M^1 may be moved into engagement (by means hereinafter described) with a bevel toothed wheel N secured on the lower end of a vertical shaft N^1 carried in bearings N^2 N^2 secured to the plate J and carriage A respectively.

This shaft N^1 is connected by bevel toothed wheels O, O, (see Figs. 1. and 2.) to a longitudinal shaft P carried along the top of the carriage, the said shaft being carried in bearings P^1 secured to the roof of the carriage.

In each compartment of the carriage is a casing Q (see Figs. 1. 2. 3. and 4.) provided with a glass front or opening Q^1 and above the casing Q is a removable casing R. Mounted in bearings secured to the latter are two rollers S S^1 on which is a flexible band S^2 on which the names of the stations are printed, this flexible band is wound off one roller on to the other and in its passage passes over an idle roller S^3 placed opposite to the glass front or opening Q^1 of the casing Q, where the names of the stations are each in turn exhibited.

The two rollers S S^1 are connected to each other by toothed wheels T T^1 and the former to a toothed wheel T^2 secured on a transverse shaft U, the latter is connected by a clutch U^1 to a shaft U^2 which is connected by a bevel tooth wheels U^3 to the longitudinal shaft P.

The shaft U is carried in bearings secured to the casing R, and the shaft U^2 to bearings secured to the top of the carriage.

The casing R together with the mechanism therein may thus be removed bodily and be replaced by a casing and mechanism on the band of which is a different list of stations.

The flexible band S^2 may be made to travel in either direction as required by moving either of the wheels M and M^1 into engagement with the wheel N, this may be effected by means of a lever W (see Figs. 1. and 2.) pivotted on the end of the carriage, the upper end of which lever is provided with a fork which engages with an annular recess in the boss of the two wheels M M^1.

The lower end of the lever W is connected to a sliding bar X by means of which it may be operated from either side of the carriage.

As the carriage passes over each point where an incline D is fixed, the shoe or lever C is raised and the pawl L moved through an angular space carrying the wheel K with it which will advance the mechanism sufficiently to bring the next station on the band S^2 into view.

The extent of the movement of the shoe or lever is limited by stops Y Y acting on the lever F in order to prevent it from overrunning when the carriage is travelling at a great speed.

The rachet wheel and pawl, and the reversing mechanism may be enclosed in a casing Z as shown.

The arrangement described may be fitted to the engine and guards van, and in addition it may be connected in foggy weather, to the brake mechanism so as to automatically apply the brake, or be connected to audible indicator mechanism adapted to attract the attention of the driver and guard.

The above described audible indicator mechanism is preferably arranged so that it may be thrown out or into action by either the driver or guard or both as required.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed I declare that what I claim is

(1.) In station indicator mechanism the combination with an incline plane such as D on the permanent way of a curved lever or shoe such as C pivotted on a carriage or a bracket secured thereto substantially as described.

(2.) In station indicator mechanism the combination with an inclined plane such as D on the permanent way of a curved lever or shoe such as C pivotted on a carriage or a bracket secured thereto a rachet wheel K pawl L and reversing gear such as that provided by the toothed wheels M M^1 and N substantially as described.

(3.) In station indicator mechanism the combination with a flexible band S^2 on which the stations are printed of rollers S and S^1 for carrying the said band one or both being connected to the operating mechanism and an intermediate roller S^3 placed opposite an opening in the casing and over which the said band is carried as it passes from one roller S to the other S^1 or *vice versa* substantially as described

(4.) In station indicator mechanism the combination with a fixed casing Q placed in the interior of the carriage and provided with an opening Q^1 of a detachable exterior casing R to which the bearings of the rollers S S^1 and S^3 and shaft U are attached and a detachable clutch U^1 for connecting the shaft U to the operating mechanism in order that said casing R and indicator mechanism may be removed and interchanged substantially as described.

(5.) The combination and arrangement of parts constituting the complete station indicator mechanism substantially as described and illustrated in the accompanying drawings.

Dated this 8th day of October 1897.

THOMAS ELLIOTT,
Boult & Wade,
Agents for the Applicant.

Redhill: Printed for Her Majesty's Stationery Office, by Malcomson & Co., Ltd.—1898

Elliott R Jan 9, 1897 # 644

Fig. 3.

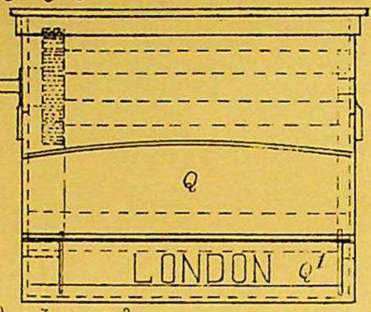


Fig. 4.

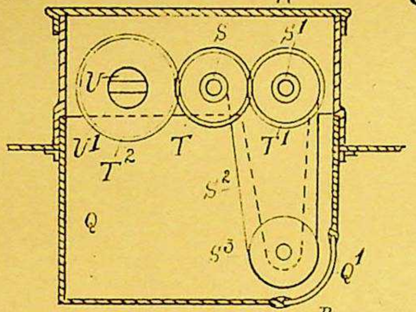


Fig. 5.

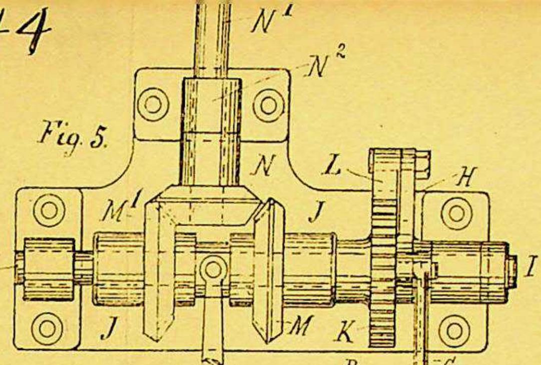


Fig. 6.

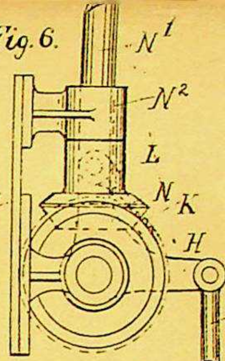


Fig. 1

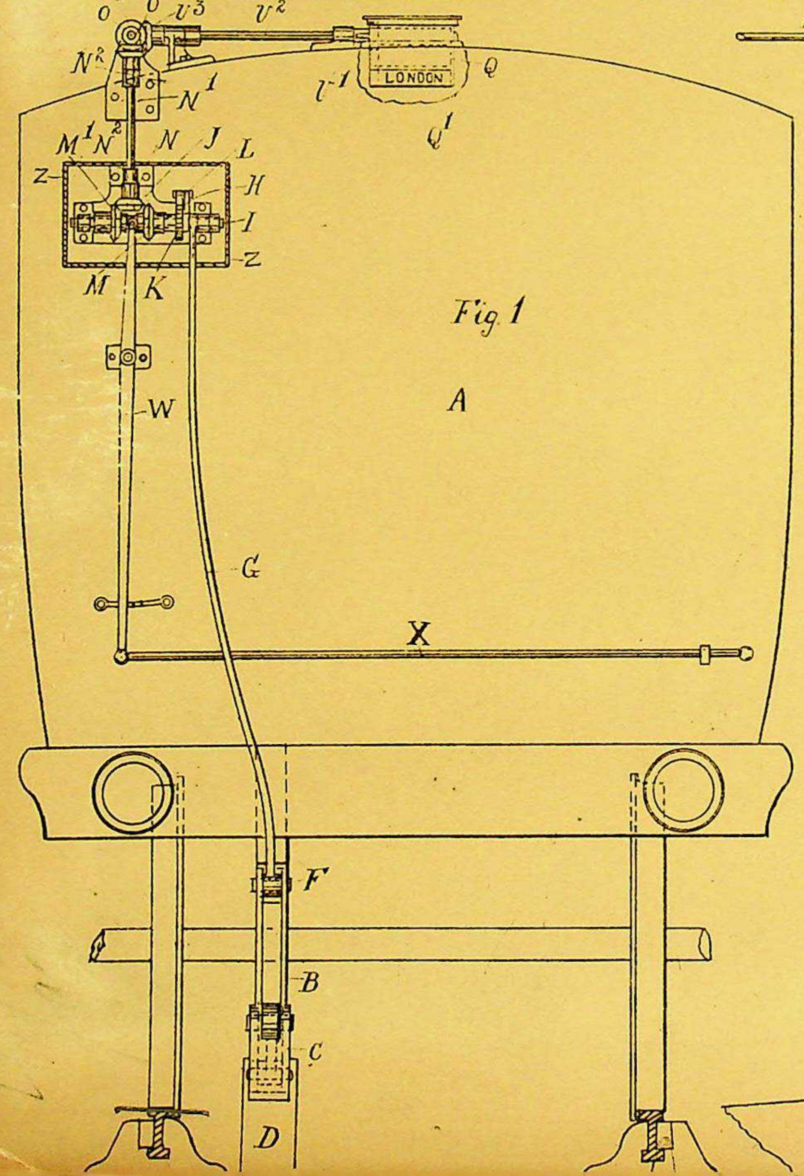
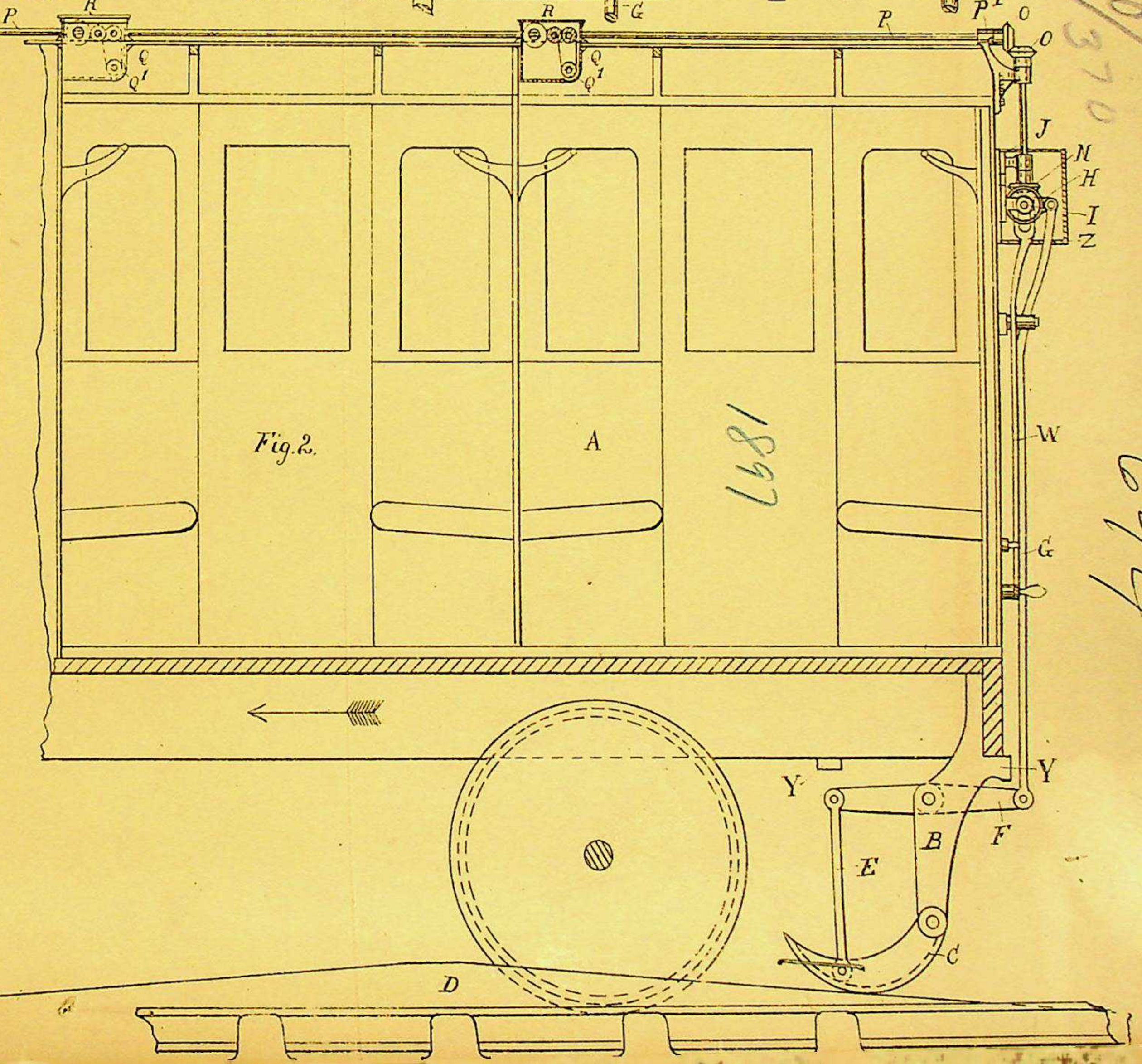


Fig. 2.



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116, Signals Indicators Station

AMENDED SPECIFICATION.

This Print is in accordance with the Original Specification as it stands after Amendment (under Section 11 of the Patents, &c. Act, 1883) as required by the decision of the Chief Examiner of the 9th day of April 1898.

N° 644 A.D. 1897

DUPLICATE

Date of Application, 9th Jan., 1897
Complete Specification Left, 9th Oct., 1897—Accepted, 18th Dec., 1897

PROVISIONAL SPECIFICATION.

Improvements in or relating to Station Indicators or Combined Station Indicators and Signalling Mechanism.

I, Thomas Elliott, of 21 Pelham Street, in the Borough of Nottingham, Furrier and Mantle Merchant, do hereby declare the nature of this invention to be as follows:—

This invention relates to improved apparatus for indicating in each compartment of a train the several stations, junctions, or the like on the line as the train approaches each in turn. The apparatus may be also used in conjunction with apparatus for signalling to the driver or guard or both.

In carrying out my invention each carriage is provided with an approximately vertical slide, a lever, or other convenient mechanism, the lower end of which is carried below the carriage and engages with and is raised, by raised platforms or striking parts placed at the required points on the line.

At a convenient part of the carriage is a transverse shaft mounted in suitable bearings, this shaft is provided with a ratchet wheel which is operated by a pawl connected to the slide or lever before-mentioned, and the said shaft is thus intermittently advanced or rotated the required distance by each raised platform or striking part of the line.

The transverse shaft is connected by an intermediate shaft and bevel toothed wheels, to a longitudinal shaft carried preferably over the top of the carriage.

In a convenient position in each compartment, is a rotating cylinder, on the periphery of which are printed the names of the stations in their proper order. The axis of each cylinder is connected preferably by a short shaft and bevel toothed wheels, to the longitudinal shaft, so that the whole are rotated through the required space simultaneously.

The axis of the cylinders are connected to their operating mechanism by suitably formed clutches, in order that they may be readily removed and interchanged as required, for cylinders on which the names of the station correspond with the particular route or line the carriage may be for the time being running on.

The cylinders may be also enclosed in a suitable box or casing provided with an opening of sufficient size to expose the name of one or more stations at once as desired.

In order that the same cylinder may be used for a carriage travelling in either direction between two points, the transverse shaft is provided with two bevel wheels, either of which may be moved into engagement with the wheel on the end of the intermediate shaft, and the direction in which the cylinders rotate is thus reversed.

The arrangement described may be fitted to the engine and guards van, in addition it may be in either or both cases connected in foggy or other unfavourable weather to the brake mechanism so as to automatically apply the brake, or be connected to other suitable indicator mechanism adapted to attract the attention of the driver or guard or both.

The above described mechanism is preferably arranged so that it may be thrown out or into action by either the driver or guard or by both as required.

Dated this 9th day of January 1897.

BOULT & WADE,
Agents for the Applicant.

COMPLETE SPECIFICATION (AMENDED).

Improvements in or relating to Station Indicators or Combined Station Indicators and Signalling Mechanism.

I THOMAS ELLIOTT, of 21, Pelham Street, in the City of Nottingham, Furrier, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

This invention relates to improved apparatus for indicating in each compartment of a train, the several stations, junctions, or the like, as the train approaches each in turn. The apparatus may also be used in conjunction with apparatus for signalling to the driver or guard.

The invention will be best understood by reference to the accompanying drawings in which

Fig. 1. is an end elevation, and

Fig. 2. a side elevation (partly in section) of a railway carriage showing my invention applied thereto.

Fig. 3. is a front elevation, and

Fig. 4. a vertical cross section of the indicator mechanism.

Fig. 5. is a vertical front elevation, and

Fig. 6. an end elevation of the indicator operating racket wheel and pawl, and the reversing arrangement.

Like letters indicate like parts throughout the drawings.

In carrying out this invention each carriage A (see Figs. 1. and 2.) is provided with a bracket B which may be secured to the underframing of the carriage, and on the lower end of the said bracket is pivotted a curved shoe or lever C. This shoe or lever C engages with and is raised by inclined planes or striking parts D placed at the required parts on the permanent way, when the carriage travels past the said points, whether the carriage is moving in the direction indicated or in the reverse direction.

The shoe or lever C is connected by a link E to one end of an intermediate lever F which is pivotted on the bracket B as shown. The other end of the lever F is connected by a link G to a bell-crank lever H (see Figs. 1. 2. 5. and 6.) which is mounted loosely on a shaft I carried in bearings formed on a plate J secured to the back of the carriage.

The shaft I is provided with a rachet wheel K which is advanced by a pawl L on the bell-crank lever H, and two level toothed wheels M M^1 which slide longitudinally on the shaft I but are connected thereto by a feather-key in the one engaging with a corresponding keyway in the other.

Either of the wheels M M^1 may be moved into engagement (by means hereinafter described) with a bevel toothed wheel N secured on the lower end of a vertical shaft N^1 carried in bearings N^2 N^2 secured to the plate J and carriage A respectively.

This shaft N^1 is connected by bevel toothed wheels O, O, (see Figs. 1. and 2.) to a longitudinal shaft P carried along the top of the carriage, the said shaft being carried in bearings P^1 secured to the roof of the carriage.

In each compartment of the carriage is a casing Q (see Figs. 1. 2. 3. and 4.) provided with a glass front or opening Q^1 and above the casing Q is a removable casing R. Mounted in bearings secured to the latter are two rollers S S^1 on which is a flexible band S^2 on which the names of the stations are printed, this flexible band is wound off one roller on to the other and in its passage passes over an idle roller S^3 placed opposite to the glass front or opening Q^1 of the casing Q, where the names of the stations are each in turn exhibited.

The two rollers S S^1 are connected to each other by toothed wheels T T^1 and the former to a toothed wheel T^2 secured on a transverse shaft U, the latter is connected by a clutch U^1 to a shaft U^2 which is connected by a bevel tooth wheel U^3 to the longitudinal shaft P.

The shaft U is carried in bearings secured to the casing R, and the shaft U^2 to bearings secured to the top of the carriage.

The casing R together with the mechanism therein may thus be removed bodily and be replaced by a casing and mechanism on the band of which is a different list of stations.

The flexible band S^2 may be made to travel in either direction as required by moving either of the wheels M and M^1 into engagement with the wheel N, this may be effected by means of a lever W (see Figs. 1. and 2.) pivotted on the end of the carriage, the upper end of which lever is provided with a fork which engages with an annular recess in the boss of the two wheels M M^1.

The lower end of the lever W is connected to a sliding bar X by means of which it may be operated from either side of the carriage.

As the carriage passes over each point where an incline D is fixed, the shoe or lever C is raised and the pawl L moved through an angular space carrying the wheel K with it which will advance the mechanism sufficiently to bring the next station on the band S^2 into view.

The extent of the movement of the shoe or lever is limited by stops Y Y acting on the lever F in order to prevent it from overrunning when the carriage is travelling at a great speed.

The rachet wheel and pawl, and the reversing mechanism may be enclosed in a casing Z as shown.

The arrangement described may be fitted to the engine and guards van, and in addition it may be connected in foggy weather, to the brake mechanism so as to automatically apply the brake, or be connected to audible indicator mechanism adapted to attract the attention of the driver and guard.

The above described audible indicator mechanism is preferably arranged so that it may be thrown out or into action by either the driver or guard or both as required.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed I declare that I am aware that it has been previously proposed to place upon railway carriages station indicators actuated by inclines fixed upon the permanent way and that I make no general claim thereto but what I claim is

(1.) In station indicator mechanism the combination with an inclined plane such as D on the permanent way of a curved lever or shoe such as C pivotted on a carriage or a bracket secured thereto substantially as described.

(2.) In station indicator mechanism the combination with an inclined plane such as D on the permanent way of a curved lever or shoe such as C pivotted on a carriage or a bracket secured thereto a rachet wheel K pawl L and reversing gear such as that provided by the toothed wheels M M^1 and N substantially as described.

(3.) In station indicator mechanism the combination with a flexible band S^2 on which the names of the stations are printed of rollers S and S^1 for carrying the said band one or both being connected to the operating mechanism and an intermediate roller S^1 placed opposite an opening in the casing and over which the said band is carried as it passes from one roller S to the other S^1 or *vice versa* substantially as described.

(4.) In station indicator mechanism the combination with a fixed casing Q placed in the interior of the carriage and provided with an opening Q^1 of a detachable exterior casing R to which the bearings of the rollers S S^1 and S^3 and shaft U are attached and a detachable clutch U^1 for connecting the shaft U to the operating mechanism in order that said casing R and indicator mechanism may be removed and interchanged substantially as described.

(5.) The combination and arrangement of parts constituting the complete station indicator mechanism substantially as described and illustrated in the accompanying drawings.

Dated this 8th day of October 1897.

THOMAS ELLIOTT.
Boult & Wade,
Agents for the Applicant.

Redhill: Printed for Her Majesty's Stationery Office, by Malcomson & Co., Ltd.—1898